

**THYRISTOR DEVICE WITH CARBON LIFETIME ADJUSTMENT IMPLANT
AND ITS METHOD OF FABRICATION**

Abstract:

In a method of fabricating a semiconductor memory device, a thyristor may be formed in a layer of semiconductor material. Carbon may be implanted and annealed in a base-emitter junction region for the thyristor to affect leakage characteristics. The density of the carbon and/or a bombardment energy and/or an anneal therefore may be selected to establish a low-voltage, leakage characteristic for the junction substantially greater than its leakage absent the carbon. In one embodiment, an anneal of the implanted carbon may be performed in common with an activation for other implant regions the semiconductor device.